

CLAIMS

What is claimed is:

1. A touch switch apparatus for generating a control signal on an output line, the apparatus comprising:

5 a touch pad;  
a control circuit in close proximity to said touch pad;  
said control circuit being electrically coupled to said touch pad;  
said control circuit having an input node for receiving an input signal from a remote signal source;

10 said touch pad being configured to receive a field generation signal;  
wherein said field generation signal causes an electric field to be generated about said touch pad;  
said control circuit being responsive to a stimulus affecting said electric field;  
said control circuit being configured to selectively generate a control signal in response to said stimulus affecting said electric field; and  
15 said control circuit having an output node for transmitting said control signal on said output line to a remote device.

2. The apparatus of claim 1 wherein said touch pad comprises at least a first electrode.

20 3. The apparatus of claim 1 wherein said touch pad comprises a first electrode and a second electrode in close proximity to said first electrode.

4. The apparatus of claim 3 wherein said second electrode substantially surrounds said first electrode.

5. The apparatus of claim 3 further comprising a first resistor electrically coupled  
25 between said control circuit and said first electrode and

a second resistor electrically coupled between said control circuit and said second electrode.

6. The apparatus of claim 5 wherein each of said first and second resistors has a value such that said apparatus has a relatively low input impedance compared to the impedance of a contaminant in proximity to at least one of said first and said second electrodes.

7. The apparatus of claim 1 wherein said control circuit is an integrated circuit.

8. The apparatus of claim 7 wherein the integrated circuit has a low current draw when no stimulus is present to affect said electric field.

9. The apparatus of claim 7 wherein said integrated circuit is a C-MOS device.

10. The apparatus of claim 1 wherein said control circuit further comprises a decision circuit.

11. The apparatus of claim 10 wherein said control circuit further comprises at least one transistor.

12. The apparatus of claim 10 wherein said control comprises two transistors configured as a differential pair.

13. The apparatus of claim 11 wherein said at least one transistor provides an input to said decision circuit.

14. The apparatus of claim 1 wherein said control circuit further comprises a pulse generator for generating said field generation signal.

15. The apparatus of claim 1 wherein said touch pad is dimensioned such that said touch pad may be substantially overlaid by a human appendage.

16. The apparatus of claim 1 wherein the voltage of said control signal on said output line is at a minimum value when the electric field about said touch pad is not affected by a stimulus.

17. The apparatus of claim 1 wherein the voltage of said control signal on said output line is at a maximum value when the electric field about said touch pad is not affected by a stimulus.

18. The apparatus of claim 3 wherein the voltage of said control signal on said  
5 output line is at a minimum value when said electric field proximate said second electrode is disturbed to a substantially equal or greater extent than said electric field proximate said first electrode.

19. The apparatus of claim 3 wherein the voltage of said control signal on said output line is at a maximum value when said electric field proximate said second  
10 electrode is disturbed to a substantially equal or greater extent than said electric field proximate said first electrode.

20. The apparatus of claim 3 wherein the voltage of said control signal on said output line is at a maximum value when said electric field about said first electrode is disturbed to a substantially greater extent than said electric field about said second  
15 electrode.

21. The apparatus of claim 3 wherein the voltage of said control signal on said output line is at a minimum value when said electric field about said first electrode is disturbed to a substantially greater extent than said electric field about said second electrode.

22. The apparatus of claim 1 wherein said control circuit further comprises a  
20 resettable electrical latch, wherein the resettable electrical latch permits the control circuit to selectively output a continuous signal following the removal of said stimulus proximate said electric field.

23. The apparatus of claim 1 further comprising a dielectric substrate, wherein  
25 said touch pad is mounted on said substrate.

24. The apparatus of claim 23 wherein said substrate is flexible.

25. The apparatus of claim 1 wherein said input signal is a direct current signal.

26. The apparatus of claim 1 wherein said input signal is a periodically varying direct current signal.

5 27. The apparatus of claim 1 wherein said input signal is an alternating current signal.

28. A touch switch apparatus, comprising:

a touch pad;

a control circuit in close proximity to said touch pad;

10 said control circuit being electrically coupled to said touch pad;

said control circuit having an input node for receiving an input signal from a remote signal source;

said control circuit having a signal generator for generating a field generation signal and outputting said field generation signal to said touch pad;

15 wherein said field generation signal causes an electric field to be generated proximate said touch pad; and

said control circuit being responsive to a stimulus proximate said electric field;

wherein said control circuit selectively generates an output signal in response to said stimulus proximate said electric field.

20 29. A touch switch apparatus comprising:

a touch pad;

a control circuit in close proximity to said touch pad;

wherein said control circuit is in the form of at least one integrated circuit;

25 said control circuit having an input node for receiving an input signal from a remote signal source;

said touch pad being configured for receiving a field generation signal;  
wherein said field generation signal causes an electric field to be generated proximate said touch pad; and

said control circuit being responsive to a stimulus proximate said electric field;  
5 wherein said control circuit selectively generates an output signal in response to said stimulus proximate said electric field.

30. A touch switch apparatus comprising:

a touch pad;

an control circuit in close proximity with said touch pad;

10 said control circuit having an input node for receiving an input signal from a remote device;

said touch pad being configured to receive a field generation signal;

wherein said field signal causes an electric field to be generated proximate said touch pad;

15 said control circuit being responsive to a stimulus proximate said electric field;  
wherein said control circuit selectively generates a control signal in response to said stimulus proximate said electric field; and

a resettable latch for selectively outputting a control signal, wherein said resettable electrical latch permits said control circuit to selectively output a  
20 continuous signal following the removal of said stimulus proximate said electric field.